THE PROFESSIONAL MARINE COMMUNICATOR

PROCOMM

DEDICATED TO THOSE WHO HAVE GIVEN THEIR LIVES TO MARINE COMMUNICATIONS.

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Editor: David J. Ring, Jr.

Alaskan Trade ships granted exemption

THE S/S **GREAT LAND** AND S/S **WESTWARD VENTURE** HAVE BEEN GRANTED EXEMPTION BY THE FEDERAL COMMUNICATIONS COMMISSION (F.C.C.) TO RUN WITHOUT A RADIO OFFICER BETWEEN TACOMA, WASHINGTON AND ANCHORAGE, ALASKA. ACCORDING TO **PROCOMM**'S WEST COAST SOURCE, THE RADIO OFFIER OF THE S/S **GREAT LAND/WFDP** HAS BEEN TAKEN OFF AND THE RADIO OFFICER OF THE S/S **WESTWARD VENTURE/KHJB** WILL MAKE ONE MORE TRIP. **PROCOMM** CONTACTED A SPOKESMAN FOR INTER-OCEAN MANAGEMENT (**IOM**), A PHILLADELPHIA BASED SHIP MANAGEMENT GROUP, WHO SAID THAT THE SUBJECT OF THE RADIO OFFICER ON THOSE TWO SHIPS WAS "NOT A MATTER FOR DISCUSSION." **PROCOMM** ALSO CONTACTED **MR. WILLIAM POWERS** OF **MEBA DISTRICT 2** WHO SAID THAT THE RADIO OFFICERS HAD BEEN TAKEN OFF. MR. POWERS DECLINED TO SAY WHAT DEALINGS THE UNION HAD WITH THE COMPANY. HOWEVER, OTHER INDUSTRY OBSERVERS SPECULATE THAT DISTRICT 2 HAD HELPED THE SHIPOWNERS OBTAIN A EXEMPTION FROM CARRYING A RADIO OFFICER. **CRAIG JOBEST**, OWNER/OPERATOR OF **SEATTLE MARINE RADIO/KLB** IS UPSET BY THIS DEVELOPMENT AS HE SAID IN A PHONE INTERVIEW WITH PROCOMM: "THIS WILL HURT US TERRIBLY, IF THE F.C.C. ALLOWS SHIPS ON THE ALASIAN RUN TO RUN WITHOUT A RADIO OFFICER, IT WILL CUT SEVERELY INTO OUR REVENUES." KLB RUNS DIRECTIONAL ANTENNAS TOWARDS ALASKA AND THE NORTH PACIFIC AND DERIVES CONSIDERABLE REVENUES FROM VESSELS IN THIS AREA. JOBEST BELIEVES THAT IT IS UNFAIR THAT **COMSAT**, A CORPORATION ORGANIZED BY THE **U.S. CONGRESS** IS DIRECTLY COMPETING WITH PRIVATE ENTERPRISE, AND FURTHERMORE, THAT THE F.C.C. IS DIRECTLY AIDING THE COMPETITION BY REMOVING THE RADIO OFFICERS AND PLACING SATCOMM TERMINALS ABOARD THESE SHIPS.

THE FUTURE GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM - *A TRADE UNION RESPONSE*

PROCOMM thanks the **International Transport Workers' Federation,** 133-135 Great Suffolk Street, London, England for permission to publish this paper written by **Don Dishinger (ROU)**.

The International Transport Workers' Federation (ITF), founded in 1896, is composed of over five million transport workers in seafaring, civil aviation, docks, inland transport and allied trades.

One of our principal concerns is, and always has been, the health and safety of our members. Issues of safety cross all national boundaries and touch all categories of workers.

Nowhere is this more so than at sea. The establishment and improvement of safety standards at sea, through bodies such as the International Maritime Organisation, is an accepted international practice that we support and are involved in on a day to day basis.

Great advances have been made in this century in improving the working conditions and safety standards at sea. Unfortunately seafaring remains one of the most dangerous occupations. Technological advances in lifesaving and safety equipment this century have, in fact, made little difference to the overall percentage of ship casualties. The reasons for this lie in the growth of sub-standard shipping, and the lax attitude towards safety of many of the owners of these ships.

But while ship casualties may have remained at about the same percentage of overall tonnage, the effectiveness of the maritime distress system - based on the unwavering dedication of ship's Radio Officers and the rescue services - has meant that the numbers of deaths due to casualties has been reduced dramatically.

The obvious conclusion is that machines don't save peoples' lives, other people do (with the assistance of technology, of course).

It is for this reason that we view the present proposals to scrap the existing distress system and replace it with an untested, high-technology "Future Global Maritime Distress and Safety System" with grave concern. Eliminating the human element in the safety system - the Radio Officer - and replacing them with a system that, at best, will not work as well as the existing system is a very dangerous step. If the system fails, it will be seafarers and passengers who will pay with their lives for a misplaced faith in this new technology.

An ITF open meeting was held in London on 21 November 1986, with all departments on board ship represented, to consider the implications of the proposed "Future Global Maritime Distress and Safety System" (FGMDSS). It was agreed that a description of the FGMDSS should be circulated and it was specifically requested that the description should be in as simple a format as possible and without technical details that might detract from ease of understanding.

This is that document, and it serves two purposes. As a summary of the ITF's reservations about the proposed system we hope it will be useful to affiliated seafaring organisations in providing an accessible and straightforward summary of the issues at stake. We also hope that this document will assist in convincing governments and shipowners of the dangers of adopting the new system as it is now proposed.

How FGMDSS began...

FGMDSS began with the Single Sideband Radio. Its performance was truly astonishing. For the first time, ships could communicate directly with each other by voice with great clarity over long distances. Office personnel could converse with masters regularly. Wives could chat with husbands. It offered the promise of instant worldwide communications. And it renewed seafarers' hopes that help could be summoned instantly.

The promise of technology

And it was so easy to operate... just talk and listen! Some were so infatuated with its simplicity they began to wonder why ships still carried Radio Electroni Officers whose skills in sending and receiving Radiotelegraphy code had sobviously become redundant or, at least, antiquated Surely, it would be easy to dispense with such unnecessary personnel. The future looked ripe for progress.

Years went buy. The mantle was passed to a new generation and "progress" occured ... with mixed results. A United Nations body, the International Maritime Organisation (IMO) was given the responsibility of developing a sensible, economical Future Global Maritime Distress and Safety System which would take advantage of the latest technology. What began as a thoughtful and cooperative attempt by seafaring nations to develop and implement an improved radio safety and distress system has become a stampede into a Future System which is strewn with pitfalls, unforseen problems, enormous costs and conflicting claims and expectations. How did it happen? Where do we go from here?

Before FGMDSS

Radio proved itself as the single most valuable tool for saving life at sea during the sinking of the Titanic on April 15, 1912. Hundreds of lives were saved which otherwise would have been lost. The ability to directly summon assistance from nearby vessels became of such paramount importance that by international convention, every vessel greater than 1,600 tons had to acquire and maintain a radio station as well as trained personnel to operate it,.

Through the years, Radio has saved countless seafarers' and passengers' lives. It has evolved from "spark gap" transmissions to a present day system which makes use of Radiotelegraphy, SSB Radiotelephony, satellite voice and telex communications, and emergency locator beacons. Improvements in navigation equipment such as radars, loran, satellite locating equipment and electronic compasses have all contributed to safety of life at sea. From the simplest beginnings of radio we have improved, refined, advanced and created a system which works well. It is a cooperative human endeavour in which we can all take pride and one to which many owe their lives.

How the present system operates

The present Radio Distress and Safety System has one central feature: it allows every vessel equipped with radio equipment to be both the "saver" or the "saved". Ships in the vicinity of a distressed vessel may bere directly alerted. There is no middle-man. Radio Officers (REOs) and Radio Electronic Officers (REOs) keep continuous watch on 500 kHz during every moment at sea with direct listening or automatic alarm devices. Simultaneously, other distress channels and methods are available: VHF radio, medium frequency SSB radio and high frequency Radiotelegraphy all supplement the 500 kHz safety watch.

In addition, close contact with shore transmission facilities is kept through medium and high frequency Radiotelegraph, SSB, VHF, SITOR and satellite communications. It is a "layered" system which allows utilisation of equipment best suited to the immediate situation and conditions. It provides back-up capabilities in case of equipment failure. It is operated and maintained by expert RO/REO personnel whose sole duty is to operate and maintain radio communications and summon aid for vessels in distress.

It is a system which has evolved over the past 80 years. What works well has been incorporated. What can be proved to help save lives at sea can be introduced and assimilated in the present Radio Distress and Safety System. What has proven useless or dangerous has been abandoned.

Compared to the COSPAS/SARSAT emergency locator beacon service which has a nearly 98 per cent false alert rate, for example, the 500 kHz has less than one per cent false alarm rate and a 97 per cent distress alarm reception rate. This high degree of reliability of our present Radio Distress and Safety System is due, in large measure, to international agreement that dedicated RO/REO personnel be carried aboard merchant vessels over 1600 grt and that every effort should be made to maintain radio equipment in good working order while at sea.

And like the communications equipment which has increased in complexity and capability, the role of the modern Radio Electronic Officer has changed with the times. Their training has kept abreast of technological improvements and now they are so highly skilled in the maintenance of communications and navigational equipment that many vessels report a 94 per cent "at sea" repair rate.

The new system

The conception of the FGMDSS, however, is fundamentally different. First, it completely cuts off ties with the past lessons, knowledge and methods. Instead of a ship-to-ship distress alerting system which can also use shore-based communications to assist endangered ships, mariners and cargoes. It would be necessary to contact a Rescue Coordination Center (RCC), and have the center determine which (if any) vessel were nearby and have the RCC summon assistance.

Further, the system would be completely computerised and automated. the lives of mariners and passengers - as well as the vessels themselves and their valuable cargoes - would be placed in the hands of computers and an untested and probably unreliable system. It is a system which IMO had prudently intended to fully test before implementation but which, under pressure from a few nations, equipment manufacturers, and some shipping companies and their lobbyists, has weakened in its resolve to create a safe system in favor of creating a "quick" system.

Unlike the present Radio Distress and Safety System which has several communications options or "back-up" systems so that if one system should prove to be damaged or fail, another could be used ... and another after that ... the FGMDSS will incorporate only systems "tailored" to specific ocean areas - satelite communidcations and high frequency SITOR teletype (both of which have serious problems at times) to summon assistance at long distances.

VHF and Digital Selective Calling would theoretically be used for shorter ranges. And, under present expectations of many representatives at IMO, dedicated RO/REO operator/maintainers would no longer be carried aboard to perform their functions of operating and keeping distress communications equipment repaired at the very time they are needed the most ... during distress situations.

Under the handicap of FGMDSS, some ships could communicate over short range with MF radiotelephony, while others would use satellite communications, etc., but unlike the present Radio Distress and Safety System on-scene coordination by the distressed vessel would prove almost impossible since the RCC would be attempting the same feat. Delays which do not occur now would become commonplace. Lifesaving messages would be misplaced due to "computer error". Contact through complex circuit connections would be lost at crucial times. Ship's personnel delegated to preserve communications would be used in other "necessary" jobs rather than that of solely providing distress communications.

What every mariner knows, but which many "landlubbers" choose to ignore that during a disaster at sea "Murphy's Law" - anything that can go wrong ... will! - begins operating with frightening determination during distress situations. In those trying times, a tested and proven Radio Distress and Safety System which is operated and maintained by dedicated expert personnel is an invaluable asset. "Jury rigging", "making do" and coping with problems become the order of the day. If the present FGMDSS plan were implemented, such a capability would be lost forever.

Lifeboat communications

In the present Radio Distress and Safety System, lifeboats are equipped with hand-cranked transceivers which directly summon aid from other vessels. They operate on 500 kHz and 8 MHz in the Radiotelegraph and direction finding mode, and some models are now capable of 2182 kHz SSB operation. Their effective range varies from a few hundred miles in daylight hours to several thousand miles at night. And in addition, most vessels carry EPIRBS (Emergency position-indicating radiobeacons) which can alert satellites after a period of time. These EPIRBS are carried aboard most merchant vessels and can be transported to the lifeboat.

In FGMDSS, the EPIRB is not portable. It is attached to the vessel in a special break-away mounting bracket. The FGMDSS lifeboat would be equipped with a short-range vhf radio-telephone and a radar transponder which operated at short range and cannot be seen on some aircraft radars. Both devices have a range of about 10 nautical miles. If just one of the host of problems inherent in the FGMDSS high-tech system occurs, survivors in a lifeboat are presumably expected to resort to the essential back-up devices of prayer and luck.

Delays in response time

In the present Radio Distress and Safety System, an SOS heard by a Radio Electronic Officer during his listening watch will be answered immediately. If he is off watch, his automatic alarm system will be able to respond to the signal immediately, and he will normally be able to answer within 4 minutes. It is estimated by proponents of FGMDSS that 10 minutes would be an average reply time for distress communications,. That is quite oprimistic. No trials of FGMDSS have been carried out to asertain the time between the transmission of an alert, its reception at a RCC and its eventual reception by vessels in the vicinity of the ship in distress. The RCC system is only a plan, not reality.

Only individual components of FGMDSS have been tested under the most favorable conditions. At the moment the plan is to contact vessels in the vicinity of the ship in distress by an area selective call that might be received by such vessels. if any, if tjhey are not already using their equipment for other circumstances. If there are no replies, a further selective call covering a larger area has to be made and so on. The alternative is to know the position of all ships at all times and to individually call those most suitable.

Imagine, if you will, just the single problem of knowing where all vessels are, all of the time, in case one should have a distress situation so that others could be notified. Every vessel must adhere to that sailing plan or notify the RCC. Every vessel must be continuously tracked by computers and throughout the system, the computers must be synchronized with updated information. And the computers themselves must be backed up with other computers – in case one should fail. Such faith in computers is not touching. Those who work with them daily know them better ...

What else can go wrong?

Of overwhelming importance to mariners, passengers, underwriters and others involved in safely transporting merchandise over the world's oceans is "What can go wrong?" Our present Radio Distress and Safety System, in many ways, is a passive one. It does not need constant u updating to keep it working. It is in place and ready when needed. A distress message is received and then answered immediately. Nothing could be simpler.

This is what should happen when a distress occurs with only FGMDSS equipment on board:

1. The red panic button of the INMARSAT satellite communicator is pushed. As a result, a sequence of events is supposed to be initiated;

IF the vessel is not listing more than 22 degrees;

IF the highly sophisticated equipment is operating properly;

IF the satellite is not experiencing a "tempory outage";

IF the vessel is between 70 degrees north or south or does not fall between the "footprints" (earth reception area) of the satellites;

IF the satellite is not being "jammed" with competing or unwanted signals;

IF the "live" operator at the satellite earth station speaks the same language;

IF the gravity of the distress can be conveyed in a short time;

IF the land telephone circuits are not busy;

ONLY THEN might the endangered vessel be placed in telephone contact with the RCC.

2. The RCC might then attempt to extract all the relevant facts about the nature of the distress. Those familiar with governmental fact-finding procedures can appreciate the unique challange facing seafarers under such trying circumstances.

3. After the information is properly organised and understood it must be fed to a computer in a uniform and precise manner, Computers will not tolerate misplaced commas or anything out of the ordinary.

IF the computer accepts the distress information;

IF there are no hardware or software "glitches";

IF the computer programmer is well-rested, adept at his work, and doesn't misunderstand some part of the communication;

IF all other vessels have reported their positions and other relevant information concerning their whereabouts;

IF that information has been properly programmed;

IF the selection or location program is working properly;

IF such a program can identify with accuracy other vessels near the distressed vessel;

ONLY THEN can the RCC begin to notify those vessels that a distressed vessel is in the vicinity.

4. Other vessels in the vicinity receive the distress information in much the same manner in which it was sent but with one major warning: information arriving via satellite communications channels has no distress alerting feature, i.e. it may not become immediately apparent to the crew of a possible "saver" vessel that they are in possession of a distress message. Only a satellite communicator telephone call would require an immediate acknowledgement and that feature is not incorporated in FGMDSS.

5. At this point, at least theoretically, vessels would be directed to make contact with the distressed vessel and render aid. But now, something begins to happen which has never happened under the present Radio Distress and Safety System: user fees! According to the present plan of FGMDSS, the initial distress communication from the distressed vessel is free. After the first contact, however, all communications from the distressed vessel to the RCC, from the RCC to the distressed vessels are chargeable at normal tariff rates. One may facetiously wonder what would happen if the company owning the distressed vessel was not current in its payments. Our present Radio Distress and Safety System has never charged for distress communications! Is this progress?

More problems...

the EPIRB presents an interesting set of problems. The deadly one is: <u>delay</u>. Unlike the present Radio Distress and Safety System which immediately summons aid, the present COSPAS/SARSAT coverage excludes vast reaches of ocean area. SARSAT satellites retransmit alert signals they receive to special earth terminals. If there is no earth terminal within a satellite's footprint when the alert is received, there can be a delay of between one and four hours until the satellite passes over an earth terminal and dumps the message.

Even when there is an earth station available at the right moment, the exact geographical location of the ship in distress cannot, in many cases, be accurately calculated until the same, or another, satellite receives the continuing alert and retransmits it back to the earth terminal – it can be a lengthy procedure.

To a mariner experiencing hypothermia in a freezing lifeboat, it would hardly be reassuring to know a satellite is reporting his position and that help may come ... eventually ...

IF it is determined that the alert received was not one of the many false ones;

IF he is within the footprint of the orbiting satellite;

IF the EPIRB battery still works;

IF his lifeboat has not drifted too far from the EPIRB, or more than ten miles from the position calculated by the earth station;

IF someone can be alerted to his plight in time ...

Until the unfortunate soul in the lifeboat or liferaft catches sight of a vessel steaming over the horizon or a rescue aircraft, he cannot directly communicate with anyone or even guess his fate. How much better to send and receive signals directly to a nearby vessel!

Another serious EPIRB problem is range. Proponents of the FGMDSS have apparently become infatuated with the idea of EPIRBS and have chosen to ignore their limitations. They have recommended the substitution of a VHF EPIRB for a satellite EPIRB on "coastwise" vessels. Unfortunately, VHF EPIRBS have a short range of about 10 nautical miles (line-of-sight reception). So any distressed vessel greater than 10 miles from shore radio station must be within ten miles of another ship if there is to be any chance of its plight being made known.

The boy who cried wolf...

EPIRBS and 2182 KHz medium frequency distress alerting devices have been in use for years. And yet they are plagued with false alerts. Why? And why don't other parts of the present Radio Distress and Safety System have similar problems?

The answer are short and unequivocal. The present Radio Distress and Safety System makes use of well trained, experienced and competent RO/REO personnel who take their job of providing safety aboard merchant vessels seriously and pursue their goal in a conscientious manner. EPIRB alerts, on the other hand, are often set off accidentally during testing by inexperienced users, by transporting the equipment, rough handling, and many other inadvertent or ill advised actions. Costs of such false alerts in the U.S. are in the order of tens of millions of dollars per year. Real distress alerts are impossible to differentiate from false ones and one technique employed by COSPAS/SARSAT personnel is simply to wait and see if the alert continues. What an extraordinary solution that must seem to those in peril at sea!

But the same problems plague 2182 MHz SSB distress alerts. Abuse of this distress alerting channel is so rampant that often many alerts are received in a single evening - not one of which is a real alert. Fishing boats use the alarm to waken their fellows to a rich haul; extensive testing occurs; and alarm circuits are sensitive to such an extent that the alarm signal often outdistances the ability to communicate by SSB by a wide marginThe net result is that few ship-handlers have an opportunity or inclination to closely monitor its haphazard mixture of false and real alarms. It was once a potentially useful adjunct but now has been degraded to a useless chatter channel. 2182 is not the mariner's equivalent of Citizen Band radio.

FGMDSS as presently proposed at IMO will make use of Digital Selective Calling, a technique by which specific shore bases and ship users can be selectively contacted in the 2 MHz and VHF mode. Unfortunately, the same problems will apply and one can hardly expect much improvement in present conditions of misuse of the distress equipment

Maintenance and repairs

FGMDSS proponents remain firm in their misplaced faith in technology. Most do not deal with technology, directly, generally ignore the lessons of high-technology, and do not understand that there are benefits but also costs. Manufacturers have sounded the clarion call of "reliability" and shipowners have echoed with "availability". The belief that technology will solve its own problems and be cost-effective in the process underpins the new mythology. Technology has worked miracles. Its effects touch upon almost every life in this complex world today. It is little wonder we have faith in technology.

Technology cannot solve its own problems. People solve problems. The space shuttle ***Challenger*** tragedy graphically illustrates the point. The failure of the best, most advanced, state of the art back-up system after back-up system, and all the technological marvels of one of the most scientifically advanced nations on earth makes this crystal clear. First, the managers of spacecraft technology rushed ahead with proceedures, materials, and plans which were suspected of being faulty. Their sense of urgency and history of past achievements outweighed their common sense.

The second, and less apparent lesson was that the more complex a system becomes, the more that can go wrong. Finally, when the *Challenger* exploded, the entire U.S. space delivery program fell apart. Other satellite delivery systems no longer worked. For many months, the U.S. was simply not capable of delivering payloads into orbit.

Almost without exception, the same mistakes are beign repeated in FGMDSS. Were the FGMDSS not critically responsible for saving lives, some risk might be acceptable. But what we see now is a stampede into a risky future, with life and death consequences for everyone at sea. Proponents of the future system wish to abolish our time-tested back-up systems. They insist that even more complex technology need not be repaired at sea. They contend that ever more complex and sophisticated electronic equipment is more reliable than that which it is intended to replace (a fact which is hotly disputed by those who deal with electronics technology daily). They simply are not prudent.

The Radio Officer's critical role

Proponents of FGMDSS paint a picture of distress communications at sea which combines the stylishness of the latest Video Tape Recorder, the simplicity of an automated telephone exchange, the reliability of an electric toaster, and the cost-effective features of the latest pocket calculator. To those naive supporters of FGMDSS, as it is presently conceived, the immediate cost-saving feature of the system would be that of dispensing with the Radio Electronic Officer. Tremendous savings, it is said, would accrue from that one act. Unfortunately, things are not so simple.

In terms of Safety of Life at Sea, Radio Electronic Officers have paid their way for the past eighty years. They have provided experience, skill and dedication in saving lives, in saving property and in advancing and improving the present Radio Distress and Safety System. They have repaired faulty radars, transmitters, receivers, weather facsimile equipment and a host of other electronic devices aboard merchant vessels through the years.

They rarely lost contact with other vessels and shore-side communications facilities, and normally can restore lost channels through their ability to make repairs while underway. They are an essential component of an increasingly professional merchant marine crew and will continue to improve their cost-effectiveness as more and more electronic devices find their way aboard the world's merchant fleet. It will simply not be possible to sutitute FGMDSS for the skillled RO/REO operator/maintainer.

But something would be sacrificied. Without the proposed removal of the Radio Electronic Officer, FGMDSS is in deep trouble. It is expensive beyond comprehension. The original projection cost of US $15 billion at the inception of the FGMDSS promises to be exceeded many times over. At the very time when the world's merchant marine is plagued by soaring costs, overtonnage, and the threat of a major decline in revenues because of proposed trade legislation, still another major expenditure is contemplated: the swollen costs of FGMDSS.

Two of these enormous costs are:

1. NEW COMMUNICATIONS EQUIPMENT
Many of the communications devices used bu the Radio Electronic Officers will no longer be used in FGMDSS. Newly designed equipment must be purchased, installed, and maintained. The newer, highly sophisticated equipment is more expensive, more difficult to repair, and is less reliable than most equipment used today. The costs of purchasing, installing and maintaining such additional equipment aboard a single large merchant vessel will easily exceed one hundred thousand U.S. dollars. Component level spares and test equipment will no longer be used at sea under the present plan for FGMDSS

Under FGMDSS, shore-based maintenance would be exclusively used. Thus, the cost of complete spare circuit boards for each electronic device aboard the vessel, maintenance depots, personnel whose costs are computed on the basis of availability rather than the actual repairs thmake, and a host of less visible costs will descend upon shipowners, seafaring nations ad the general public alike.

2. RESCUE COORDINATION CENTERS
New computerised RCCS must be developed all over the world. The personnel must be trained to operate them. Expensive communications equipment must be purchased. And physical RCC facilities must be constructed.

Another less obvious cost will be the price of communications. On-going studies have indicated that vessels which rely upon satellite communications can average over ten times the cost of vessels which rely upon Radiotelegraphy. The projected monopoly of INMARSAT over all future satellite communications, the mandated requirement of FGMDSS that satellite communications be utilised, and the dependence upon fewer communications alternatives will increase everyday communications costs astronomically. Even at this

early date, INMARSAT is aggressively attempting to attract customers to a communications system which costs more to operate than it can earn.

But increasing services to more vessels will necessitate an expansion at even greater cost. New earth stations must be built, linked with Local User Terminals and RCCs and new satellites must be launched. For the world's fleets, it is a "no win" proposition. Costs will sky-rocket as surely as will the losses in lives and material if such naive path is followed.

Even smaller coastwise vessels will not be immune. New equipment has been conceived which it is hoped will replace presently used equipment. Digital Selective Calling, EPIRBs, radar transponders, and walkie talkies are just a few of the expenses operators of small craft will bear under FGMDSS. In such an expensive undertaking one question always surfaces: Who will profit? Shipowners? Seafarers? Passengers? Underwriters? The profits will go to those who have conceived FGMDSS and are now clamouring so persistently for its adoption. A few technologically advanced nations now await the windfall of profits that FGMDSS promises. Those high-tech countries forsee unprecidented profits which will be realised from a mandatory requirement for sophisticated electronic communication and navigation devices. They are the potential sellers. Who are the potential buyers?

The buyers of FGMDSS equipment and services will be all the ocean carriers. Merchant fleets of less technologically developed nations will pay the price for expensive distress and safety communications equipment which, in many ways is inferior to the equipment they already possess. They will pay the bill for spare parts to keep the equipment operating and will pay for the frequent shore-side service such equipment requires.. Seafaring nations which can least afford it will pay the lion's share for a system of dubious value. And in the name of progress, they will be asked to dismantle a working system and dispense with the expert capabilities of their on-board repairman, skilled operator and exprienced seaman - the RO/REO.

Two important studies conducted by U.S. unions are nearing completion and will be ready for distribution soon.

One study computes the ultimate cost of implementation of FGMDSS for the U.S. - the total cost! All relevant costs of FGMDSS are being examined: equipment costs, installation costs, costs of spare circuit boards, costs of satellite and other shore-based terminal facilities, RCC personnel and operating costs, and false distress alert costs. Estimates will be conservative but will reflect as accurately as possible what the fleetwide investment will be.

The second study will examine operating cost differentials between vessels fitted with FGMDSS type communications equipment and equipment which is more commonly used aboard today's merchant fleet. Some of the implications of this study will graphically illustrate the hidden costs of FGMDSS.

A third and useful product of both studies will also become available for distribution soon. It is a computational format by which administrators can develop a clear and comprehensive picture of just what FGMDSS will cost their nations and maritime fleets. All three documents will be made available at no charge. (The studies refered to are being jointly conducted by the ITF-affiliated ***Radio Officers' Union*** and ***American Radio Association - Masters, Mates and Pilots***).

Where do we go from here?

Fortunately, the unthinking and inadvisable rush into FGMDSS can be avoided. While some violate the technological imperatives already mentioned, more and more are advising caution. Certain features of **FGMDSS** may prove usable and they should be tested throughly to determine their value.. More importantly, we must try to preserve the best parts of our present Radio Distress and Safety System. It saves lives very well. It provides constant and economical communications for the world's merchant fleet. It is a system which, with the addition of certain improved equipment, will become ever more reliable and effective. It is far better to build upon the foundation of what works very well, in the hope of improving it, than to scrap the entire structure in the hope that replacement will be even better.

That [scrapping the present system - Ed.] would be neither prudent nor sensible. Anyonne who has an interest in preserving life at sea, valuable cargoes, and vess has an interest in the present Radio Distress and Safety System. Shippers, consumers and owners all have an interest in avoiding wasteful expenditure and deserve the best return for their hardearned funds.